

Desk Reference for Medical Professionals



Office Based

PLANET

Pediatric Lead Assessment Network Education Training

Ohio Department of Health
Childhood Lead Poisoning Prevention

Childhood Lead Poisoning

Ohio Overview



There is no safe level of lead in the blood.

Ohio has the third highest percentage of children under age 6 with elevated blood lead levels.

Pre-1978 Housing

- Houses built before 1978 are likely to contain lead-based paint.
- Ohio's large burden of elevated blood lead levels can be attributed to the age of Ohio's housing stock.

Sources of Lead Exposure

Ways children can be exposed to lead:

- Lead-based paint dust/chips
- Occupational take-home lead
- Water
- Food/herbs
- Soil
- Toys
- Cosmetics
- Folk remedies



95% of Ohio's lead poisoning cases result from dust created by deteriorated lead-based paint in houses built before 1978.

Lead Poisoning Prevention

**1.
Reduce
Exposure**

In addition to performing ongoing monitoring of a child's BLL,

**2.
Reduce
Absorption**

**3.
Reduce
Hazards**

physicians can play a significant role in educating parents on the dangers of lead.



1. Reduce Exposure

Cleaning

- Common places with lead dust include wood floors, carpet, upholstery, window sills and window wells.
- Wet mop instead of dry sweeping.
- Borrow a HEPA vacuum from your local health department.
- Thoroughly clean toys and other items that are used by children.



Hygiene

- Wash hands often, especially before meals and before bedtime.
- Do not let children play in bare soil outside.

Occupational

- If you work around products or materials containing lead (i.e., manufacturing, automotive or construction) avoid exposing your child to lead by:
 - changing clothes and shoes at work.
 - showering as soon as you get home.
 - washing work clothes separately.

2. Reduce Absorption

- A well-rounded healthy diet reduces lead absorption.
- Vitamin C aids in iron absorption.



Foods Rich in Calcium, Iron & Vitamin C

Rich in Iron and Calcium

Non-heme iron: Dried beans, peas, lentils, spinach and broccoli
Heme iron: Lean red meats, chicken and fish
Calcium: Low-fat milk, cheese and yogurt

Rich in Vitamin C

Citrus, leafy greens, broccoli, bell peppers and sweet potatoes

3. Reduce Hazards



Beware of Lead Dust

- Remodeling and renovating can create lead dust.

Create Safe Barrier Around Lead Hazards

- Use furniture as a barrier to windows that contain lead paint.
- Cover flaking or peeling paint with duct tape as a temporary measure.



Keep Child Safe

- Remove child from area and contain dust during remodeling.

Signs and Symptoms of Lead Poisoning



Signs and symptoms:

- Irritability
- Behavioral problems
- Abdominal pain
- Lethargy
- Loss of appetite
- Headaches
- Memory loss
- Seizures (high lead exposure)

Lifelong Consequences:

- Speech and language problems
- Decreased bone and muscle growth
- Hearing loss
- Damage to the nervous system and/or kidneys

Effect of lead poisoning:

- Developmental delay
- Cognitive problems
- Decreased IQ
- Attention Deficit Disorder
- Violent crime

Healthcare Provider Responsibilities

Blood lead testing requirements for Ohio children less than 6 years

1. Medicaid eligible
2. Lives in a high risk zip code (*see Ohio High Risk Zip Codes Requiring Blood Lead Testing*)
3. Lives in or regularly visits a home or building built before 1950
4. Lives in or regularly visits a home or building built before 1978 that has deteriorated paint
5. Lives in or regularly visits a home or building built before 1978 that has current or planned renovation/remodeling
6. Has a sibling or playmate that has or did have an elevated blood lead level
7. Frequently encounters an adult who has a lead-related hobby, or occupation
8. Lives near an active lead smelter, battery recycling plant, or other industry known to generate airborne lead dust



Medical Management

- All capillary (finger/heel stick) test results $\geq 5 \mu\text{g}/\text{dL}$ must be confirmed by venous draw.
- Point-of-care instruments such as the Lead-Care[®] II cannot be used to confirm an elevated blood lead level.
- Any confirmed level of lead in the blood is a reliable indicator that the child has been exposed to lead.
- The Ohio Healthy Homes and Lead Poisoning Prevention Program will respond accordingly to all blood lead levels of $5 \mu\text{g}/\text{dL}$ or greater.



Additional Medical Management

- According to the American Academy of Pediatrics *Bright Futures*, physicians should follow the *Medical Management Recommendations* provided by ODH.
- A minimum of two tests are required for all at-risk children prior to their third birthday; specifically, at the child's one and two year well child visits.
- Healthcare providers must screen for asymptomatic lead poisoning and provide guidance on primary prevention.

Aiding Families

- Perform an environmental and family occupational history to educate parents about common sources of childhood lead exposure.
- Encourage parents to identify potential lead hazards in their homes and recommend ways to reduce their child's lead exposure.
- Provide parents with free educational pamphlets and booklets developed by ODH.

Elevated Blood Lead Test

ODH Lead Poisoning Prevention Surveillance System

- Clinical laboratories must be approved by ODH to analyze blood lead tests of Ohio residents.
- Laboratories are required to report blood lead results electronically within 7 days of analysis to ODH.
- Cases and investigations are opened for health department staff.

Case Management

- Case management services are provided by local health departments to coordinate the care of children with elevated blood lead levels.
- Case managers work collaboratively with primary care providers and public health lead investigators to ensure that proper medical management and follow-up occurs.
- Case managers provide education to families about the effects of lead and how to reduce their child's lead level.

Public Health Lead Investigation

- A public health lead investigation occurs when a child's blood lead level is confirmed at 5 – 9 $\mu\text{g}/\text{dL}$.
- A public health lead investigation with an environmental risk assessment occurs when a child's blood lead level is confirmed at 10 $\mu\text{g}/\text{dL}$ or higher.
- An investigator will attempt to identify lead hazards in a child's environment and provide guidance on avoiding those hazards.

Additional Practices

- Initiate a Help Me Grow referral when developmental delays are suspected.
- Obtain family permission to facilitate communication between the early intervention program, school and the medical home.

Resources

Contact:

Ohio Healthy Homes and Lead Poisoning Prevention Program

Ohio Department of Health

246 North High Street

Columbus Ohio 43215

Phone: 1-877-LEAD-SAFE (1-877-532-3723)

www.odh.ohio.gov

Additional Resources for Information on childhood Lead Poisoning

Government Agencies:

Ohio Department of Medicaid <http://www.medicaid.ohio.gov/FOROHIOANS/Programs/Lead.aspx>

Housing and Urban Development (HUD) https://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes

U.S. Environmental Protection Agency (EPA) <https://www.epa.gov/lead>

Centers for Disease Control and Prevention (CDC) <https://www.cdc.gov/nceh/lead/>

Lead Advocacy and Support Groups:

National Center for Healthy Housing <http://centerforhealthyhousing.org/>

Children's Environmental Health Network <http://cehn.org>

Ohio Healthy Homes Network <http://www.ohhn.org/>

American Academy of Pediatrics <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/lead-exposure/Pages/default.aspx>



Medical Management Recommendations for Ohio Children Receiving Blood Lead Tests



Ohio Healthy Homes and Lead Poisoning Prevention Program

- Ohio Healthy Homes and Lead Poisoning Prevention Program: 1-877-LEAD-SAFE
- Help Me Grow Hotline (Home Visiting and Early Intervention): 1-800-755-GROW (4769)
- Medicaid Provider Hotline: 1-800-686-1516 • Children with Medical Handicaps (CMH): 614-466-1700
- Poison Control: 1-800-222-1222 • Women, Infants and Children (WIC): 614-644-8006

Blood Lead Level (BLL)	Confirm Using Venous Blood Within:	Medical Management Recommendations for BLL:	Venous Retest Intervals after Recommended Actions:
<5 µg/dL	Not required	<ul style="list-style-type: none"> • Explain that there is no safe level of lead in the blood, what the child's BLL means, and how the family can reduce exposure. For reference, the geometric mean blood lead level for children 1-5 years is 1.3µg/dL. • Monitor the child's neurologic, psychosocial, and language development. 	<ul style="list-style-type: none"> • Test again at age 2 if first test is at age 1 • Lead testing should be considered if the child moves to a different home, day-care, school, etc. that was built before 1978

Blood Lead Level (BLL)	Confirm Using Venous Blood Within:	Medical Management Recommendations for BLL:	Venous Retest Intervals after Recommended Actions:
5-9 µg/dL	1-3 months	<p>In addition to medical management actions listed above:</p> <ul style="list-style-type: none"> • Provide lead education: potential environmental sources, effect of diet on exposure, potential health effects, and hazards associated with renovating pre-1978 homes. • Monitor subsequent increases/decreases in blood lead levels until the BLL remains <5 µg/dL for at least six months and lead exposures are controlled. 	<ul style="list-style-type: none"> • Every 3 months for first 2-4 tests • After 4 tests, every 6-9 months until BLLs drop to below 5µg/dL
10-44 µg/dL	Within 1 month	<p>In addition to medical management actions listed above:</p> <ul style="list-style-type: none"> • Complete child history and physical exam. • Assess iron status. Also consider status of hemoglobin or hematocrit. Children with low iron levels are more likely to have high blood lead levels. Follow AAP guidelines for prevention of iron deficiency. • Obtain an abdominal X-ray if particulate lead ingestion is suspected. Bowel decontamination should be performed if particulate lead ingestion is indicated. • Refer to the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) for other nutritional counseling. • Refer to Help Me Grow program within 7 days if a potential delay in development has been identified. • Refer to the Children with Medical Handicaps program (CMH). 	Within 1 month
≥45 µg/dL	As soon as possible	<p>In addition to medical management actions listed above:</p> <ul style="list-style-type: none"> • Confirm results by venous blood sample immediately. A venous specimen will ensure therapy is based on current and reliable information. • Lab work for hemoglobin or hematocrit and free erythrocyte protoporphyrin are indicated. • Immediately remove child from exposure source (chelation could have negative effects if not moved to lead safe environment). • Hospitalization and chelation therapy should be considered with consultation from a medical toxicologist or pediatric environmental health specialist. 	<ul style="list-style-type: none"> • As soon as possible • Consult with expert



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